

JAN-09-06 12:10PM FROM-Fenwick & West CTR#59

415 281 1350

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QuickBase®  
Multi-Process System Architecture

December 20, 2001

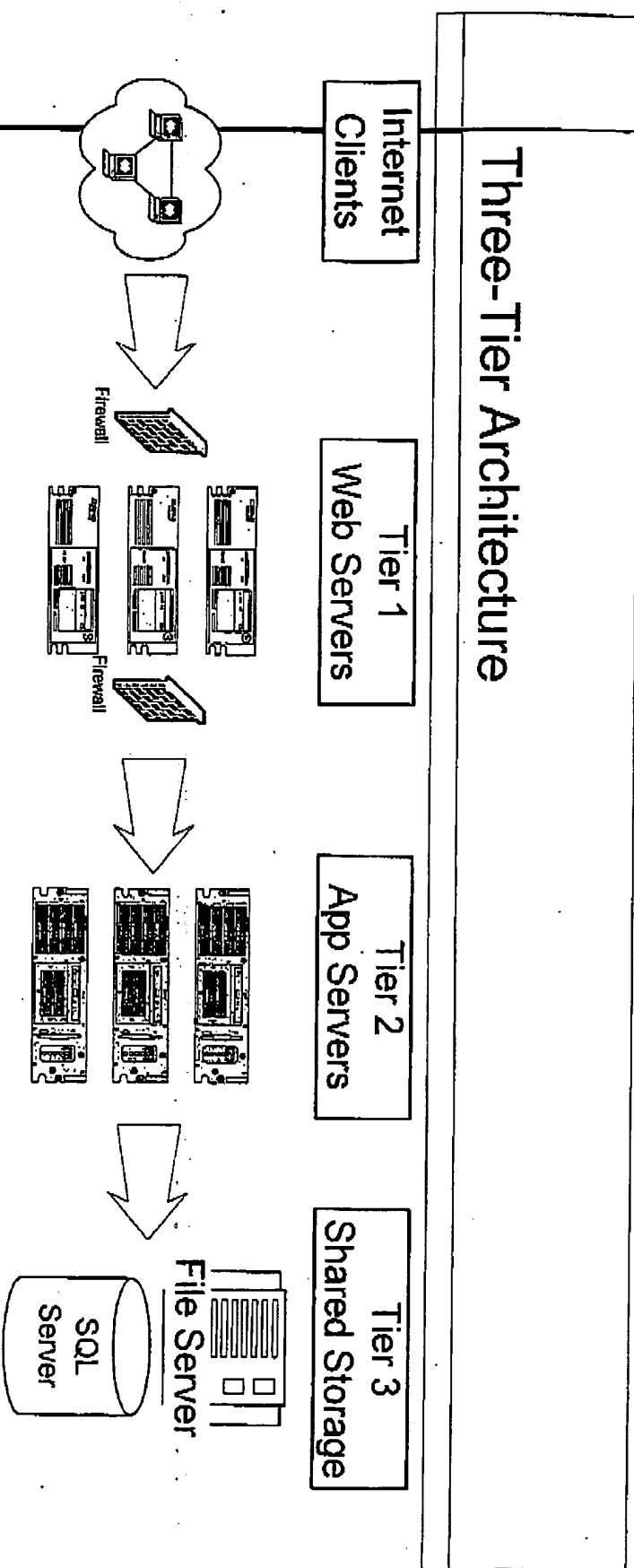
Jim Salem

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## Goals

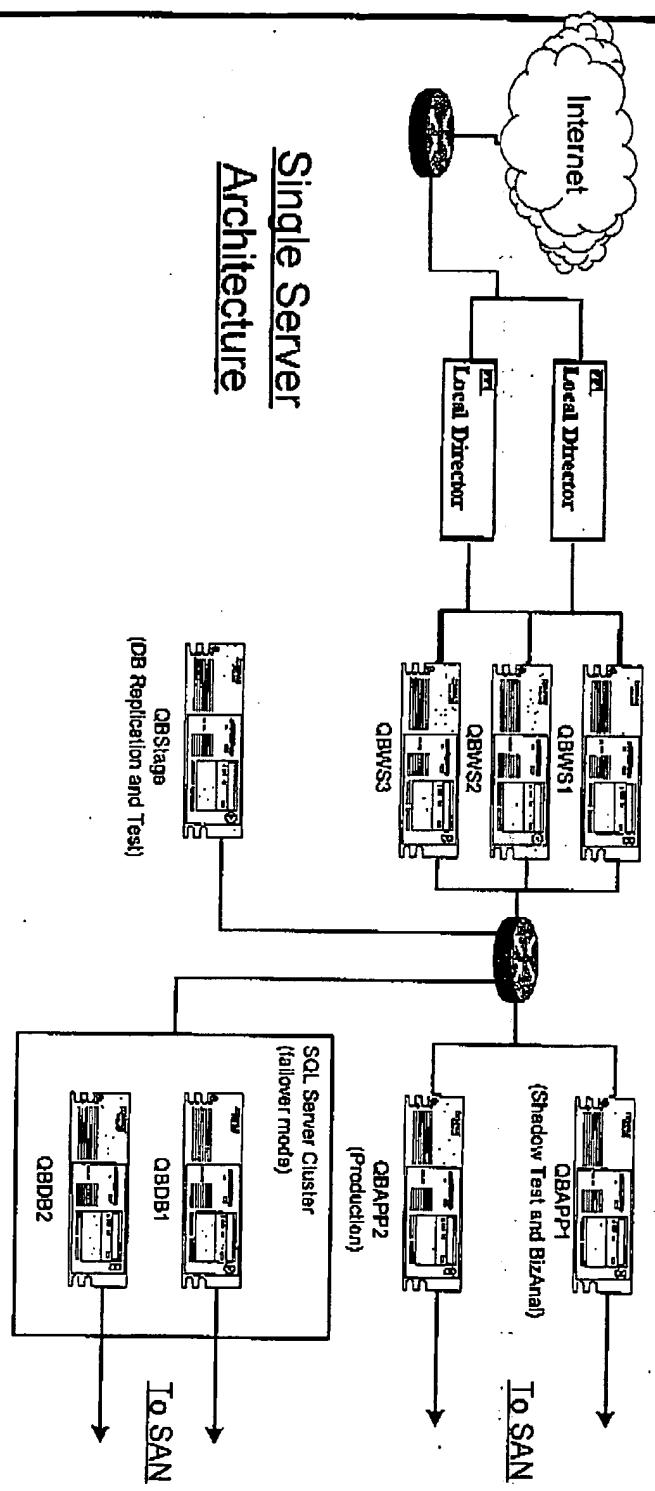
- Single Machine Scalability – at least 5x over current levels
- Multiple Machine Scalability – 100x over current levels
  - 600 transactions/second
  - 500K users per day
  - 500K different DBs per day
- Security
- Easy to Manage
- Support Rapid Development
  - Simple Deployment
  - Shadow Testing

## Three-Tier Architecture

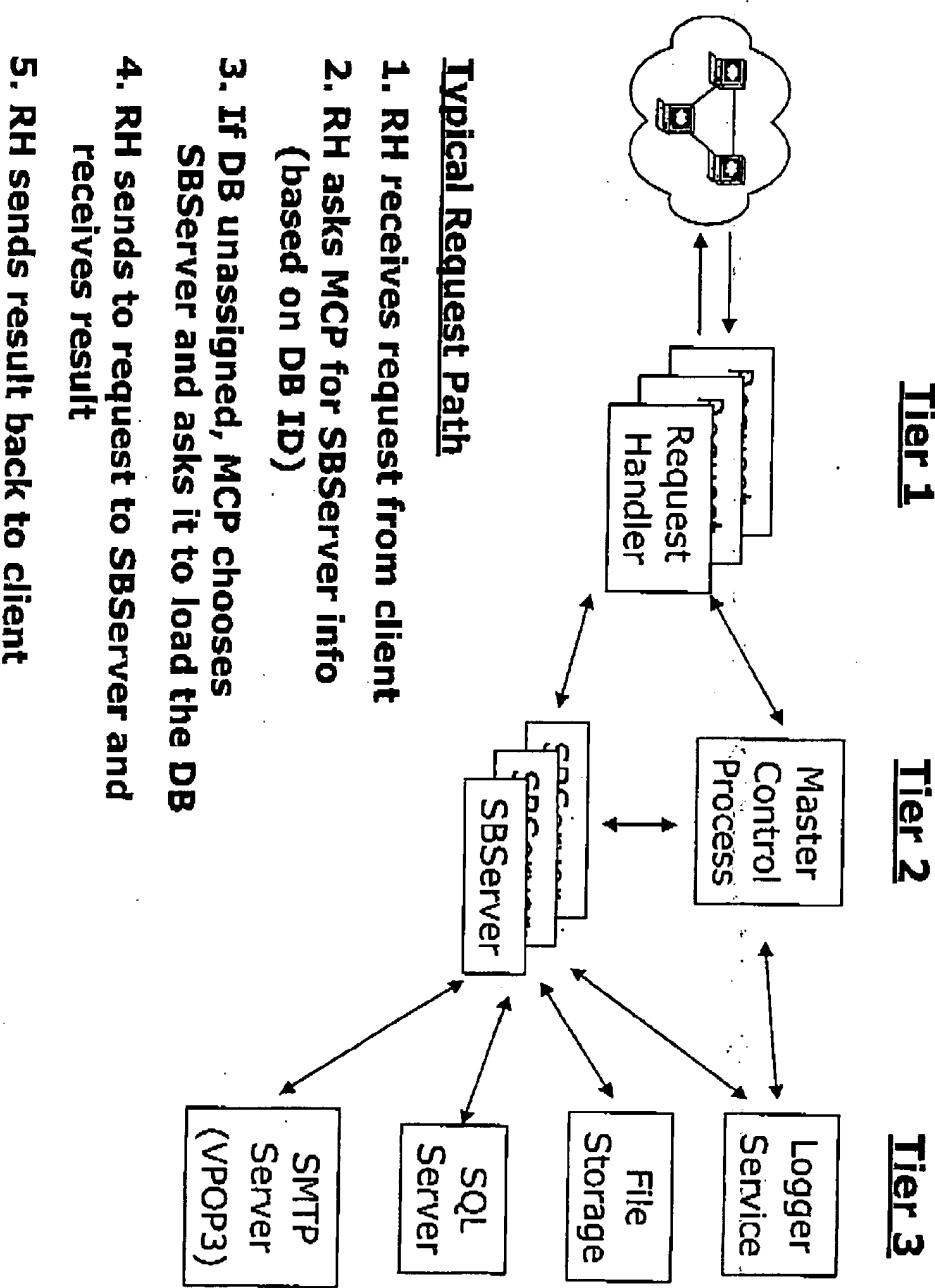


<u>Role</u>	Buffers Requests SSL Encryption Static Content	DB Transactions UI Generation	DB Backing Store System Data
<u>Machine Types</u>	Simple servers Non-redundant	Fast servers Redundant	Clustered Fast servers RAID 5
<u>Process Type</u>	Stateless	Loaded DBs assigned to one server	Multi-threaded with locking

## Hardware Diagram (Current)



## Process Architecture



## Request Handler Processes

- Runs on Web Server machines (tier 1)
- Buffers request and response between SBServers and client machines
- Displays "Server Unavailable" page if SBServer unavailable
- Web Server (IIS) manages these processes
- Two types (currently)
  - Normal (aka CGI)
  - File Download (aka |SAPI|)
- Proposed additional types (future)
  - File Upload
  - XSL Transform
  - MSWord Doc merge

## Master Control Process

- Runs on Application Server (tier 2)
- Assigns DBs to SBServers
- Tells RHs which SBServer to use
- Assigns unique DB IDs
- There is a single, multi-threaded MCP

## SBSERVER PROCESSES

- Runs on Application Server Machine (tier 2)
- Handles requests
  - Main requests
    - E.G., User profile changes, My QuickBase
    - DB requests
      - E.G., Views, Add Record
  - Layers
    - UI
    - DB engine

## SQL Server

- Runs on DB Server Machine (tier 3)
- Stores shared information
  - DB names, ACLs, etc.
  - User information
  - Statistics
- MS SQLServer 2000
- Multi-threaded

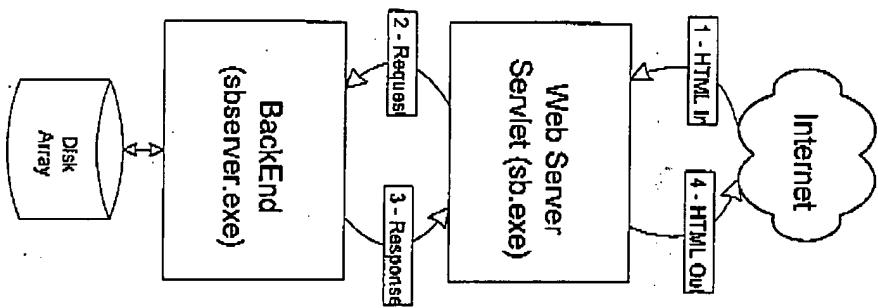
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## File Storage

- Runs on Storage Area Network (tier 3)
- Uses Compaq StorageWorks
- Future: Dedicated File Server

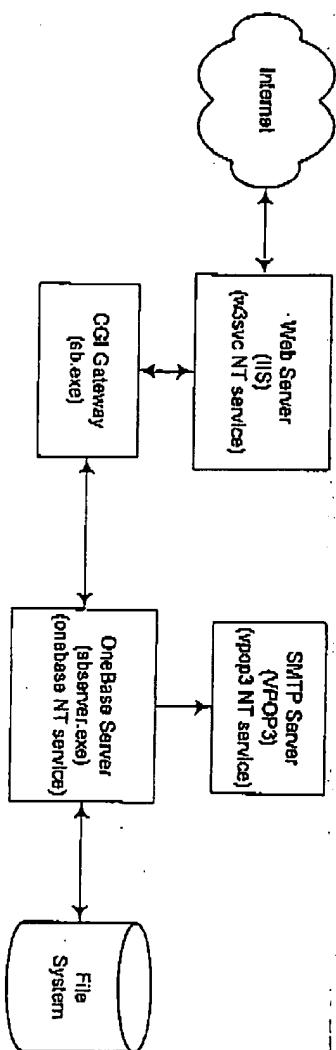
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## Old Single Process Architecture – Request Flow



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## Old Single Process Architecture – Processes



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**FACSIMILE TRANSMISSION****CONFIDENTIAL****DATE:** January 9, 2006**CLIENT-MATTER NUMBER:** 16319-05906**To:**

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**FROM:** Daniel R. Brownstone      **PHONE:** (415) 875-2358**Re:** Application 10/081,525

NUMBER OF PAGES WITH COVER PAGE: 13	
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**MESSAGE:**

Please find attached a copy of Exhibit A to the November 7, 2005 declaration of James Salem.

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